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What is claimed is:

Sub a1

1 1. A system for de-interleaving data in a wireless receiver comprising:  
2 a memory buffer to store the data; and  
3 means, coupled to said memory buffer, for performing a first and second de-  
4 interleaving of the data stored in said memory buffer.

1 2. The system of claim 1, wherein said means performs said second de-interleaving  
2 as the data is written to said memory buffer and performs said first de-  
3 interleaving as stored data is read from said memory buffer.

1 3. The system of claim 1, wherein said memory buffer stores the data, and wherein  
2 said means performs said first and second de-interleaving as the stored data is  
3 read from said memory buffer.

1 4. The system of claim 2, wherein the data comprises radio frames, said memory  
2 buffer comprises a plurality of radio frame blocks, and said means causes said  
3 radio frames to be stored in said radio frame blocks.

1 5. The system of claim 4, wherein the data is transmitted over one or more physical  
2 channels, wherein each of said radio frames comprises a physical channel frame  
3 associated with each physical channel, each of said radio frame blocks  
4 comprises a physical channel block associated with each physical channel, and  
5 said means causes said physical channel frames to be stored in said physical  
6 channel blocks.

sub a2

1 6. A receiver that receives data via a wireless link, said receiver comprising:  
2 a demodulator coupled to the wireless link;  
3 a decoding/demultiplexing unit, coupled to said demodulator, that includes:  
4 a memory buffer to store the data, and  
5 means, coupled to said memory buffer, for performing a first and second  
6 de-interleaving; and  
7 a medium access control layer coupled to said decoding/demultiplexing unit.

1 7. The receiver of claim 6, wherein said memory buffer comprises a plurality of  
2 radio frame blocks.

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1 8. The receiver of claim 7, wherein each of said radio frame blocks comprises a  
2 physical channel block.

1 9. A system for de-interleaving data in a wireless receiver comprising:  
2 a memory buffer; and  
3 a read/write unit, coupled to said memory buffer, wherein said read/write unit is  
4 configured to perform a first and second de-interleaving of the data.

1 10. The system of claim 9, wherein said read/write unit performs said second de-  
2 interleaving as the data is written to said memory buffer and performs said first  
3 de-interleaving as stored data is read from said memory buffer.

1 11. A method for de-interleaving data in a wireless receiver comprising:  
2 performing a second de-interleaving as the data is written to a memory buffer;  
3 and  
4 performing a first de-interleaving as data is read from said memory buffer.

1 12. The method of claim 11 further comprising:  
2 reassembling one or more physical channels from the data stored in said memory  
3 buffer;  
4 performing a second removal of discontinuous transmission indication bits from  
5 the data stored in said memory buffer;  
6 demultiplexing the data stored in said memory buffer into a plurality of transport  
7 channels; and  
8 reassembling transport blocks from the data stored in said memory buffer,  
9 wherein the data comprises radio frames.

1 13. A method comprising:  
2 demodulating data received via a wireless link;  
3 writing said data to a memory buffer according to a second de-interleaving  
4 pattern; and  
5 reading said data from said memory buffer according to a first de-interleaving  
6 pattern, forming an output data stream; and  
7 decoding said output data stream.

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